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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,027	12/15/2004	Jun Kikuchi	71971-077	4954

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EXAMINER	
RIVERO, MINERVA	

ART UNIT	PAPER NUMBER
2627	

DATE MAILED: 05/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/518,027	KIKUCHI, JUN	
	Examiner	Art Unit	
	Minerva Rivero	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 December 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Allowable Subject Matter

2. Claims 6-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 6-9, Kadlec *et al.* disclose using two outputs of an offset learning means (*differential FES (focus error signal)*, Col. 22, Lines 8-11), but do not disclose nor fairly suggest setting a correction value in the balance operation means to a(1+Bal) – B(1-Bal), Bal(a+b)+(a+b), Bal(a+b) or 2*Bal*a. Therefore the claims are allowable over the prior art.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-5 and 10-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Kadlec *et al.* (US Patent 6,970,403).

5. Regarding claim 1, Kadlec *et al.* disclose an optical disk device including light beam irradiating means for irradiating light beam to an optical disk, a plurality of photodetecting means for detecting reflected light or transmitted light of light beam from the optical disk, error source signal generating means for generating two signals to be sources of an error signal from a plurality of outputs from the photodetecting means, and focus monitoring means for supplying a signal indicating a focused mode or an unfocused mode of he light beam from plural outputs from the photodetecting means, an error signal generation device that generates an error signal from outputs from the

error source signal generating means, comprising (*optical disk*, Col. 2, Lines 66-67; *detectors*, Col. 3, Lines 14-16; *tracking error signal*, Col. 3, Lines 38-44; *focus error signal*, Col. 11, Lines 39-43):

adjusting means for applying a gain and an offset to two signals, which are to be sources of an error signal, from the error source signal generating means (*offset adjustment* Col. 3, Lines 50-55; Fig. 4C, elements 402-4 – 402-6; *gain adjustment*, Col. 3, Lines 63-66);

balance operation means for performing a differential operation by applying a gain balance to two outputs from the adjusting means (*gain adjustment*, Col. 3, Lines 63-66; Col. 9, Lines 39-49; Col. 10, Lines 38-42);

signal measuring means for measuring the two outputs from the adjusting means (Col. 3, Lines 52-55);

offset amount learning means for measuring an offset amount in the unfocused mode of the two outputs of the adjusting means offset from an operation reference level of the balance operation means, according to a signal indicating a light beam convergence state from the focus monitoring means and measured results of the signal measuring means (*measured offset value*, Col. 3, Lines 50-55; *focus condition*, Col. 9, Lines 39-49);

balance correction value adjusting means for determining a correction value in the balance operation according to information on a balance value from the balance operation means and the offset amount in the unfocused mode from the offset amount learning means (*differential FES (focus error signal)*, Col. 22, Lines 8-11; *re-measuring*

offset value until it is zero or a predetermined number of iterations have been performed, Col. 3, Lines 50-55; Col. 3, Lines 63-66); and

balancer correction means for adding information on the correction value of the balance correction value adjusting means to an output of the balance operation means (*FES offset value*, Col. 22, Line 26; *correcting the tracking error signal offset by an amount proportional to the measured offset value*, Col. 3, Lines 50-55).

6. Regarding claim 2, Kadlec *et al.* disclose a dynamic range (D range) on an output side of the adjusting means in the focused mode and in the unfocused mode are adjusted according to a signal indicating a light beam convergence state from the focus monitoring means so as to fall within a D range on an input side of the balance operation means (*offset values are determined such that the dynamic range of the respective input signals are centered at zero*, Col. 16, Lines 54-56).

7. Regarding claim 3, Kadlec *et al.* disclose the limitation of the D range on the input side of the balance operation means is generated from an input side D range of an A/D converter (*dynamic range of analog-to-digital converters*, Col. 16, Lines 56-59).

8. Regarding claim 4, Kadlec *et al.* disclose the offset amount learning means adjusts an offset and a gain of the adjusting means twice in the focused mode and in the unfocused mode, and calculates an offset amount of a signal offset in the unfocused mode with the gain and the offset in the focused mode according to the offset amount in

the unfocused mode and the set gains and offsets of the adjusting means in the focused mode and in the unfocused mode (*predetermined number of iterations*, Col. 3, Lines 50-55).

9. Regarding claim 5, Kadlec *et al.* disclose the offset amount learning means sets a gain and an offset in the focused mode so that an output signal of the adjusting means in the unfocused mode exceeds an output D range of the adjusting means (*a defect flag is set if a difference exceeds a pre-set defect threshold signal*, Col. 19, Lines 36-41; Col. 48, Line 63 – Col. 49, Line 13; *preset gains*, Col. 14, Lines 24-27; *preset TES (tracking error signal) is at a preset peak-to-peak value*, Col. 28, Lines 33-38; *if FES (focus error signal) exceeds a threshold limit the defect detector will indicate a defect*, Col. 29, Lines 12-18).

10. Regarding claim 10, Kadlec *et al.* disclose

the signal generation means measures a mean value of output signals of the adjusting means in the unfocused mode and in the focused mode (Col. 28, Lines 43-51; Col. 75, Lines 42-45) and

the offset amount learning means determines an offset value of the adjusting means so that the thus measured mean value becomes an operation reference level of the balance operation (*values can be input to offset calibration routine*, Col. 28, Lines 47-51).

11. Regarding claim 11, Kadlec *et al.* suggest the signal measuring means measures a time average of output signals of the adjusting means in the unfocused mode and in the focused mode and sets the thus measured time average as a mean value of the output signal of the adjusting means (Col. 23, Lines 59-62; Col. 24, Lines 3-5; Col. 26, Line 65 – Col. 27, Line 1).

12. Regarding claim 12, disclose the signal measuring means measures a maximum value and a minimum value of output signals of the adjusting means in the unfocused mode and in the focused mode, and sets an intermediate value between the thus measured maximum and minimum values as a mean value of the output signals of the adjusting means in the focused mode (*recording an average of the highest and lowest values as the peak-to-peak values*, Col. 28, Lines 43-51; Col. 75, Lines 42-45).

13. Regarding claim 13, the signal measuring means measures a maximum value and a minimum value of output signals of the adjusting means in the unfocused mode and in the focused mode within a given time period, performs this measurement plural times, and sets an intermediate value of respective averages thereof as a mean value of the output signal of the adjusting means in the focused mode (*values can be input to offset calibration routine*, Col. 28, Lines 47-51; Col. 40, Line 58-67 – Col. 41, Line 8).

14. Regarding claim 14, disclose the signal measuring means measures amplitude of

an output signal of the adjusting means in the focused mode, and the offset amount learning means determines a gain value of the adjustment means so that the amplitude of the output signal of the adjusting means in the focused mode becomes a given rate with respect to the D range on an output side of the adjusting means immediately thereafter (*focus threshold value*, Col. 18, Lines 2-10).

15. Regarding claim 15, disclose the offset amount learning means determines a gain value of the adjusting means according to a ratio between the amplitude of the output signal of the adjusting means and the D range on the output side of the adjusting means immediately thereafter (*table of gains related to slope of FES as function of FES offset value*, Col. 22, Line 65 – Col. 23, Line 11; Col. 55, Lines 53-61).

16. Regarding claim 16, disclose the offset amount learning means adjusts a gain value of the adjusting means in a manner that the gain value of the adjusting means is set to be minimum and the gain value of the adjusting means is increased gradually until amplitude of an output signal of the adjusting means thereafter exceeds a given ratio of the D range on the output side of the adjusting means immediately thereafter (*gain value corresponds to particular amounts of focus displacement*, Col. 22, Lines 29-32; Col. 16, Lines 53-59).

17. Regarding claim 17, disclose the signal measuring means measures a maximum value and a minimum value of output signals of the adjusting means in the focused

mode and sets a difference between the maximum value and the minimum value as the amplitude of the output signal of the adjusting means (*recording an average of the highest and lowest values as the peak-to-peak values*, Col. 28, Lines 43-51; Col. 75, Lines 42-45; Col. 22, Lines 8-10).

18. Regarding claim 18, disclose the signal measuring means measures a maximum value and a minimum value of output signals of the adjusting means in the focused mode within a given time period, performs this measurement plural times to obtain respective mean values of the maximum values and the minimum values, and sets a difference between the respective mean values as the amplitude of the output signal of the adjusting means (*multi-point peak averaging*, Col. 40, Lines 60-65).

19. Regarding claim 19, disclose the offset amount learning means determines a gain value of the adjusting means so that amplitude of an output signal of the adjusting means in the focused mode becomes about 80% of the D range on the output side of the adjusting means immediately thereafter (*reasonable threshold is 30% to 90% of the peak sum signal*, Col. 55, Lines 53-61; see Fig. 2L).

20. Regarding claim 20, disclose a gain value of the adjusting means is determined beforehand according to a kind of a medium used in the optical disk (*threshold value can be dependent upon the type of media*, Col. 18, Lines 6-10; Col 23, Lines 31-34; Col. 22, Lines 53-56 and 59-67 – Col. 23, Line 11).

21. Regarding claim 21, disclose there is an error between the set gain and offset values of the adjusting means and the actual gain and offset amounts, the offset amount learning means performs calibration of gain and offset amount by adjusting the set gain and offset values of the adjusting means (*values can be input to offset calibration routine*, Col. 28, Lines 47-51; *gain value corresponds to particular amounts of focus displacement*, Col. 22, Lines 29-32; *FES offset value*, Col. 22, Line 26; *correcting the tracking error signal offset by an amount proportional to the measured offset value*, Col. 3, Lines 50-55).

22. Regarding claim 22, disclose a gain variation amount with respect to the set gain value is calculated in a manner that the offset amount learning means changes a gain of the adjusting means in the unfocused mode while the offset amount is fixed, and the signal measuring means measures variation in mean values of output signals of the adjusting means (Col. 52, Lines 35-39; *FES gain can be fixed*, Col. 22, Lines 37-42).

23. Regarding claim 23, disclose an offset variation amount with respect to the set offset value is calculated in a manner that the offset amount learning means changes an offset of the adjusting means in the unfocused mode while the gain amount is fixed, and the signal measuring means measures variation in mean values of output signals of the adjusting means (Col. 52, Lines 32-34).

Conclusion

24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kadlec *et al.* (US 2002/0131344) disclose calibration of a focus error signal gain in a focus servo system.

Kadlec *et al.* (US 6,906,985) disclose calibration of tracking error signal gain in a tracking servo system.

Yamada (US 6,882,599) discloses an optical pickup device, aberration correction method and method of detecting an aberration.

Kadlec *et al.* (US 6,813,226) disclose calibration of a focus sum threshold in a focus servo system.

Takasago *et al.* (US 4,726,004) disclose an optical information recording and reproducing apparatus with tracking servo system.

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minerva Rivero whose telephone number is (571) 272-7626. The examiner can normally be reached on Monday-Friday 9:00 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on (571) 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MR 5/11/06

WAYNE YOUNG
SUPERVISORY PATENT EXAMINER